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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,630		Akira Umeda	259687US2PCT	4285
22850	7590	04/14/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			GARBER, CHARLES D	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/509,630	Applicant(s) UMEDA, AKIRA	
	Examiner Charles D. Garber	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01/30/2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36,38,40,43,53,56,58,60,63 and 71-79 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36,40,43,56,58,60,63 and 72-74 is/are rejected.
- 7) ☒ Claim(s) 38,53,71 and 75-79 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/24/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The indicated allowability of claim 36, 38, 40, 43, 53, 56, 58, 60, 63, 71-79 is withdrawn in view of the newly discovered reference(s) to Umeda and Umeda et al.

Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 72 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 72 recites the limitation "the launch tube" in line 4 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 36, 40, 43, 56, 58, 60, 63, 72, 73, 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Umeda (PTO 06-349 English language translation of Japanese Kokai Patent Application No. Hei 1[1992]-93653, henceforth "Umeda 3459") in view of Umeda et al. (PTO 06-3084 English language translation of "Frequency Characteristics of Accelerometers Measured by Impact in Low Frequencies", henceforth "Umeda 3084") and Sinsky (US Patent 3,830,091).

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Regarding claims 36, 40, 56, 60, 74, Figure 2 of Umeda 3459 discloses rod 2, flying body for generation of impact 1 (impactor, sensor 4 which has "the function of detection of the acceleration", a laser interferometer (items 12, 13, 14, 15) "so as to measure the gain frequency characteristics and phase **frequency characteristics** in the... **speed** [velocity] detection function".

Umeda 3459 also obtains "frequency characteristics" of the AE sensor as well.

Figure 2 shows the accelerometer on one end and an impactor for impating the other end.

Umeda 3459 does not expressly teach the AE acceleration sensor is a DC accelerometer nor does Umeda 3459 teach the bar is metal.

Umeda 3084 teaches "NRLM used laser interferometers, strain gages and round **metal rods** as media for transferring waves in such circumstances, and a technique for evaluating **accelerometer characteristics by DC**", and that accelerometers "are found in many fields. Automobile impact tests, radioactive waste transport cask drop tests, measurements on ship hull behavior in surges, pyroshocks, and the like are cited as typical examples thereof. Accelerometers for measurement in the high acceleration region have appeared on the market[1]. Although accelerometer makers claim that their apparatuses can be calibrated up to 60,000 G[2], internationally recognized acceleration standards have been set to an acceleration level of 10G in the frequency band of 10 kHz[3], which is clearly insufficient because of the low reliability of the accelerometer"

It would have been obvious to one having ordinary skill in the art at the time the invention was made to test DC accelerometers because they are becoming a large

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market testing standards have not been sufficient. Umeda's test procedure may better verify the reliability of these accelerometers.

It would have been also been obvious to one having ordinary skill in the art at the time the invention was made to use a metal bar as metal transmits acceleration waves with little damping compared to other materials such as plastic and are durable so they can withstand impact without breaking.

The references applied above show the rod on its side rather than with its center (longitudinal) axis is aligned with the direction of gravity, in other words, vertically.

Sinsky discloses an accelerometer comparator teaching a rod 18 that is vertically aligned (claim 1) which will help ensure "pure longitudinal translation" and no excitation of "flexure or bending modes" (column 2 lines 1-62).

It would have been obvious to one having ordinary skill in the art at the time the invention was made for the rod to be vertically aligned to ensure pure translation and a more accurate calibration.

As for claims 56, 58, 60, 43, 63, 72, while Umeda 3459 does not show an apparatus for launching the body, Umeda 3084 teaches a launching tube as shown in figure 1. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a launching tube to launch the body in order to provide a controlled and repeatable impact and consequently more consistent results.

Umeda 3459 further discloses "measurement of dynamic response characteristics of AE sensor characterized by the following facts: the elastic wave generated by applying an impact on the end surface of a round rod resonates in the

interior and reaches the other end surface and is reflected there; the displacement, velocity or acceleration in the direction perpendicular to the end surface generated in this process is taken as input to the AE sensor attached on its end surface; for the output of the AE sensor and the **output of a strain gauge** needed for determining the displacement, velocity or acceleration, Fourier transformation, Laplace transformation, filtering operation or other signal processing, as well as error correction, etc. based on the elastic wave theory are performed, so that the gain frequency characteristics of AE sensor and phase frequency characteristics in the various functions, such as displacement detection function, velocity detection function, acceleration detection function, etc., are measured.” In addition, Umeda 3459 discloses “for measurement of dynamic response characteristics of AE sensor characterized by the following facts: the elastic wave generated by applying an impact on the end surface of a round rod resonates in the interior and reaches the other end surface and is reflected there; the displacement, velocity or acceleration in the direction perpendicular to the end surface generated in this process is taken as input to the AE sensor attached on its end surface; and the displacement, velocity or acceleration in the direction perpendicular to the end surface of the round rod are **measured directly with a laser interferometer**, so as to measure the gain frequency characteristics and phase frequency characteristics in the displacement detection function, speed detection function, acceleration detection function, and other functions.”

As for claim 58, computer 8 in Umeda 3459 obtains the frequency data from the strain gauge, AE and laser interferometer. Though the computer does not expressly

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calculate characteristics with respect to gravity acceleration in said frequency response, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations *Ex parte Masham 2* USPQ2d 1647 1987).

As for claim 73, a "low peak" and "narrow frequency band domain" are substantially subjective values. The device of Umeda 3459 may be considered to measure these characteristics from the AE acceleration sensor.

Allowable Subject Matter

Claims 38, 53, 71, 75-79 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

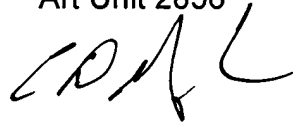
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D. Garber whose telephone number is (571) 272-2194. The examiner can normally be reached on 8:00 a.m. to 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles D. Garber
Primary Examiner
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A handwritten signature in black ink, appearing to read 'CDG', is written over the printed name of Charles D. Garber.

cdg